

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 29-31 are currently pending. Claims 29-31 have been amended by the present amendment. The changes to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Claims 29-31 were rejected under 35 U.S.C. §112, first paragraph, regarding the "Hamming distance between codewords" limitation; and Claims 29-31 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,834,344 to Aggarwal et al. (hereinafter "the '344 patent"), U.S. Patent 5,483,597 to Stern (hereinafter "the '597 patent"), and U.S. Patent 5,949,796 to Kumar (hereinafter "the '796 patent").

Applicants respectfully submit that the rejection of Claims 29-31 under 35 U.S.C. §112, first paragraph, is rendered moot by the present amendment to Claims 29-31. Claims 29-31 have been amended to no longer refer to a Hamming distance.

Amended Claim 29 is directed to a watermark embedding unit for embedding watermark information containing information of a user identification number into a predetermined content to prevent collusion attack, comprising: (1) means for outputting at least one simplex codeword selected from a plurality of simplex codewords constructing a simplex code, in correspondence with an inputted user identification number, wherein, when a number of the plurality of simplex codewords is N and a codelength of the codewords is $N-1$, a correlation value between simplex codewords is $-1/(N-1)$; and (2) means for embedding the outputted at least one simplex codeword as watermark information into the content as an

embedding target. The changes to Claim 1 are supported by the originally filed specification and do not add new matter.¹

The '344 patent is directed to a method for marking high quality digital images with a robust and invisible watermark. The '344 patent discloses that the first phase of the method comprises extracting a digest or "number" N from the image so that N only depends on the essential information content, while the second phase comprises the marking. However, as admitted in the Office Action, the '344 patent fails to disclose outputting at least one simplex codeword selected from a plurality of simplex codewords constructing a simplex code, as recited in amended Claim 29. Further, Applicants respectfully submit that the '344 patent fails to disclose that when a number of the plurality of simplex codewords is N and a codelength of the codewords is $N-1$, a correlation value between the simplex codewords is $-1/(N-1)$, as recited in amended Claim 29.

The '597 patent is directed to a method of authenticating the identity of an identification device by a verification device using a zero knowledge input protocol based on the decoding by syndrome problem. Further, the '597 patent discloses that the process consists of setting up a secret vector S , and that in an alternative embodiment, a user may have several secret codes $S(1)...$, $S(W)$ that can be forced to form an extended simplex code.² However, Applicants note that the '597 patent discloses that the simplex code is merely an example and that a Reed-Solomon code can be used for the user authentication set rather than a simplex code. Further, the '597 patent fails to disclose that when a number of the plurality of simplex codewords is N and a codelength of the codewords is $N-1$, a correlation value between the simplex codewords is $-1/(N-1)$, as recited in amended Claim 29.

¹ See, e.g., page 93 of the specification.

² '597 patent, column 2, lines 57-60.

The '796 patent is directed to a method and system for the transmission and reception of an in-band on-channel FM band digital audio broadcast signal. However, Applicants respectfully submit that the '796 patent fails to disclose that when a number of the plurality of simplex codewords is N and a codelength of the codewords is $N-1$, a correlation value between the simplex codewords is $-1/(N-1)$, as recited in amended Claim 29.

Accordingly, no matter how the teachings of the '344, '597, and '796 patents are combined, the combination does not teach or suggest means for outputting at least one simplex codeword selected from a plurality of simplex codewords constructing a simplex code, in correspondence with an inputted user identification number, wherein, when a number of the plurality of simplex codewords is N and a codelength is $N-1$, a correlation value between the simplex codewords is $-1/(N-1)$, as recited in amended Claim 29. Accordingly, Applicants respectfully submit that the rejection of Claim 29 is rendered moot by the present amendment to Claim 29.

Independent Claims 30 and 31 recite limitations analogous to the limitations recited in independent Claim 29. Moreover, Claims 30 and 31 recite means for identifying, as a colluder, an identification number corresponding to a codeword having a largest correlation value obtained by the means for obtaining a correlation value. Moreover, for the reasons stated above for the patentability of Claim 29, Applicants respectfully submit that no matter how the teachings of the '344, '597, and '796 patents are combined, the combination does not teach or suggest that when a codelength of the codewords is $N-1$ and a number of the codewords is N , a correlation value between codewords is $-1/(N-1)$, as recited in Claim 30. Further, Applicants respectfully submit that the combined teachings of the '344, '593, and '796 patents fails to disclose the means for identifying recited in Claims 30 and 31. Accordingly, Applicants respectfully submit that the rejections of Claims 30 and 31 are rendered moot by the present amendment to those claims.

In the outstanding Office Action, the stated motivation for combining the teachings of the '344, '597, and '796 patents is "for verification of the validity of the identification device" and "for increasing a signal to noise ratio." However, Applicants respectfully submit that the Office Action is simply stating perceived advantages of Applicants' invention as motivation to combine the cited references, without identifying that, without Applicants' specification, one of ordinary skill in the art would have even thought to address the problem. Further, Applicants note that the Office Action refers to column 31, lines 12-14 of the '796 patent as providing motivation to combine the cited references. However that passage states that "[i]n certain embodiments of the receiver, when the BER estimate is substantially equal for both codewords in each pair, the codeword estimates are combined in order to increase the signal to noise ratio (SNR) since the redundant contributions at approximately coherently and the noise contribution add approximately incoherently."³ However, Applicants respectfully submit that this passage has nothing to do with Applicants' invention and would not provide one of ordinary skill in the art to combine the teachings of the '344, '597, and '796 patents. Moreover, the statement attributed to the '597 abstract regarding the verification and the validity of an identification device merely states the purpose of the '597 application and does not provide one of ordinary skill in the art with motivation to combine the teachings of the '344, '597, and '796 patents in the manner suggested in the Office Action. Accordingly, for this additional reason, Applicants respectfully submit that amended Claims 29-31 patentably define over any proper combination of the '344, '597, and '796 patents.

Thus, it is respectfully submitted that independent Claims 29-31 patentably define over any proper combination of the '344, '597, and '796 patents.

³ See '796 patent, column 31, lines 9-14.

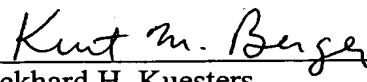
Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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